ORGANIZATION AND OPERATION OF A PUBLIC UTILITY FOR A REMOTE COMMUNITY SUCH AS ATLIN, B.C.

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ORGANIZATION AND OPERATION OF A PUBLIC UTILITY FOR A REMOTE COMMUNITY SUCH AS ATLIN, B.C.

Executive Summary

Background

Located in the northwest corner of British Columbia about 45 km south of the Yukon border, the community of Atlin has experienced a gradual growth in tourism, a rejuvenation of places mining and an increasing interest in pioneer lifestyles. Its population is about 350 year-round, increasing by about a third in the summer.

This remote community gets its electrical power from a diesel generating station owned and operated by B.C. Hydro.

A 1984 study undertaken for the community under the Remote Community Demonstration Program of Energy, Mines and Resources Canada concluded that the development of a small-scale hydro installation was economically viable. B.C. Hydro has indicated that it is not in a position to undertake a small hydro development. However, the community has expressed interest in developing the hydro resource, establishing itself as a utility and distributing the power through the existing B.C. Hydro distribution system.

Objective

This study reviewed the procedures the community would have to follow and the commitment it would have to consider to become a regulated utility.

Conclusions

There are two basic ways to organize and operate a public utility for the Atlin area: either through an improvement district alone, or through an improvement district combined with B.C. Hydro. (An improvement district already exists in Atlin which provides fire protection, garbage collection and street lights. Under the British Columbia Municipal Act, an improvement district can acquire property, arrange financing, levy charges, construct, maintain and operate works and regulate the distribution of electricity.)

The study concludes that the potential positive implications of the local improvement district owning and operating the entire system are:

- This option most satisfies the community's objectives for energy self-sufficiency;

- This option provides local employment and cash flow in the community.

However, the possible negative implications are:

- This is a long-term commitment and so assumes future residents will continue the responsibility of operating a public utility;

- Limitations or conditions of service must be defined, as must considerations of serving newcomers to the area;

- Normal customer service, including bill collecting, must be done. (In a small community, this may mean collecting on overdue accounts from neighbors.)

- Operating the public utility would place greater demands on the improvement district's board of trustees, for example in revising improvement district boundaries, arranging financing and detailed feasibility studies;

- A mechanism would have to be established to take over B.C. Hydro's distribution system and diesel generating facility. It could take several years to effect the takeover.

Under the second option, i.e. the improvement district combining with B.C. Hydro, the potential positive implications are:

- B.C. Hydro has central billing and back-up maintenance provisions already in place;

- The improvement district does not have to revise its boundaries if it sells power to B.C. Hydro.

The potential negative implications under this option are:

- An agreement would be required with B.C. Hydro to purchase the power;

- The improvement district would require approval from the B.C. Department of Municipal Affairs to carry out the function of a public utility and it would be regulated by the B.C. Utilities Commission to sell power to B.C. Hydro;

- This also is a long-term commitment which assumes future residents will continue to own and operate the small hydro facility.

The study was prepared by Reid Crowther & Partners Ltd. in November 1985 under contract to the Remote Community Demonstration Program of Energy, Mines and Resources Canada.

ORGANISATION ET MISE EN SERVICE D'UN SERVICE PUBLIC POUR UNE COLLECTIVITÉ ÉLOIGNÉE COMME CELLE D'ATLIN (C.-B.)

Résumé

La situation

Dans le nord-ouest de la Colombie-Britannique, située à environ 45 kilomètres au sud de la frontière du Yukon, la collectivité d'Atlin a connu une croissance graduelle du tourisme, un renouvellement de l'exploitation des placers et un accroissement d'intérêt à l'égard de la vie pionnière. Chaque été, sa population permanente de quelque 350 habitants augmente d'environ le tiers.

Elle est alimentée en électricité par une centrale au diesel de la BC Hydro.

D'après une étude entreprise en 1984 pour le compte de cette collectivité dans le cadre du Programme de démonstration dans les collectivités éloignées d'Énergie, Mines et Ressources Canada, l'aménagement d'une petite centrale hydro-électrique serait rentable. La BC Hydro a fait savoir qu'elle ne pouvait se lancer dans une telle entreprise. Toutefois, la collectivité est intéressée à se fournir d'une petite centrale et à s'établir comme service public se chargeant de la distribution au moyen du réseau actuel de la BC Hydro.

Objectif

L'étude a porté sur les marches que la collectivité doit suivre et sur l'engagement qu'elle doit prendre pour devenir un service réglementé.

Conclusion

À cette fin, deux choix se présentent: soit de se transformer uniquement en Zone d'aménagement, soit de combiner une telle zone avec le réseau de la BC Hydro. (Un tel projet existe déjà à Atlin pour assurer le service de lutte contre les incendies, l'enlèvement des ordures et l'éclairage des rues. Aux terms de la British Columbia Municipal Act, une zone d'aménagement peut acquérir de la propriété, organiser le financement, imposer des frais, construire, entretenir et exploiter des installations et réglementer la distribution d'électricité.)

Voici le avantages éventuels auxquels conclut l'étude si une zone d'aménagement locale possédait et exploitait tout le réseau:

- cette option est celle qui répond le plus aux objectifs d'autonomie énergétique de la collectivité;

- elle fournit de l'emploi sur place et des ressources d'autofinancement pour la collectivité.

Cependant, elle a aussi pour conséquence:

- d'être un engagement à long terme de sorte qu'elle suppose que les résidents futurs continueront d'exploiter le service public;

- qu'il faut définir les limites ou les conditions du service et prendre en considération le service aux nouveaux venus dans la région;

- le service courant aux clients, y compris le recouvrement des comptes, doit être assuré. (Dans une petite collectivité, cela pourrait vouloir dire recouvrer des sommes en souffrance des voisins.)

- L'exploitation d'un service public accroîtrait la charge du conseil d'administration de la zone d'aménagement, par exemple pour redéfinir les limites territoriales de la zone, organiser le financement et les études de faisabilité détaillées;

- Il faut établir un moyen de prendre en charge le réseau de distribution de la BC Hydro et de la centrale au diesel. Une telle relève pourrait prendre plusieurs années.

Quant à la seconde option, c'est-à-dire une action concertée avec la BC Hydro, elle a pour avantage éventuel:

- que la BC Hydro dispose déjà de services centraux de facturation et d'entretien;

- que la zone d'aménagement n'a pas besoin de redéfinir ses limites territoriales si elle vend l'électricité à la BC Hydro.

Par contre, elle a pour désavantage:

- qu'il faudrait signer un accord d'achat d'électricité avec la BC Hydro;

- qu'il faudrait que la zone soit approuvée par le ministère des affaires municipales de la Colombie-Britannique à titre de service public et qu'il faudrait qu'elle soit réglementée par la BC Utilities Commission afin de pouvoir vendre l'électricité à la BC Hydro;

- la encore, il s'agit d'un engagement à long terme qui suppose que les résidents futurs voudront bien posséder et exploiter la petite centrale.

L'étude a été préparée en novembre 1985 par Reid Crowther & Partners Ltd. sous contrat emmis par Énergie, Mines et Ressources Canada dans le cadre de son Programme de démonstration dans les collectivités éloignées.

1.0 INTRODUCTION

Energy Mines and Resources Canada (EMR) through the Remote Community Demonstration Program funded the Community of Atlin to study its current energy use and possible alternatives to the diesel generation of electricity. The report (Reid Crowther, 1984) concluded that the development of a small scale hydro installation was economically viable. B.C. Hydro, who operate the existing diesels and distribution system, has indicated that it is not in a position to undertake the small hydro development. However, the Community of Atlin has expressed its desire to develop the hydro resource, establish as a utility and distribute the power through the existing B.C. Hydro distribution system.

The purpose of this report is to review the procedures the community of Atlin would be required to undertake and the commitments it would have to consider to become a regulated utility. The implications of a remote community establishing itself as a public utility are elucidated to provide a basis for a final decision by the community whether it is willing and capable of undertaking the responsibility of being a regulated utility.

2.0 BACKGROUND

2.1 The Setting

Atlin is located in the northwest corner of British Columbia on the east shore of Atlin Lake. The community lies 45 km south of the Yukon Territory border and is accessed by a single gravel transportation link to the Alaska Highway in the Yukon.

The present year round population in the Atlin area is 342. The Atlin population increases by about 125 each summer as seasonal residents return to the area (Stanley & Associates, 1981). If the growth rate continues at two percent per year, the year round population of Atlin will reach 479 by the year 2001. Atlin's economic potential lies primarily in the areas of government, mining and tourism.

Atlin is designated a remote community or non-integrated area in B.C. Hydro terms, and is currently serviced with electrical power from a diesel generating station owned and operated by B.C. Hydro.

2.2 Small Hydro- Project Description

The Energy Alternatives Report (Reid Crowther, 1984) concluded that a small scale hydro development on Pine Creek could be economically viable. Four potential sites were assessed. Site 3 was considered preferable as it offered a greater scope for future development. Site 3 would have a design rating of 750 kW, and a maximum potential of 1500 kW. The 68 m head available would require 1.45 m^3/s of water in a 1200 mm steel penstock 1800 m long. Diesel standby would be required and some load management, or diesel peak topping, may be required during the winter peak

loads. Approximately 450 kW diesel standby likely would be adequate. Lake storage could provide year round firm power and sufficient water for additional capacity to 1500 kW.

The 1984 cost estimate for the Site 3 run-of-river facility is $2,390,000 and $2,680,000 with lake storage. Unit energy costs to generate at Site 3 the first year are expected to be $0.15 kW.h, dropping to a projected $0.06 kW.h by year 15.

This compares with reported present diesel generation costs of $0.17 to $0.20 kW.h for fuel, with rising costs in the future. These costs do not take into account transmission, distribution, meter reading, etc. The reported 1983 actual cost of electricity, taking into account all costs, is $0.45 kW.h. (Reid Crowther, 1984, page 81 & 99). No estimate has been made of the actual cost with small hydroelectric generation.

The 1984 rate for the purchase of electricity in Atlin from B.C. Hydro using the diesel generating station is only $0.0566 kW.h. The community foresees increased rates in the future, through both normal rate increases and through the potential of the removal of subsidized rates. Hence, there is a desire among Atlin residents for energy security, self sufficiency and thus the pursuit of hydroelectric generation for the area. The community's sincerity and drive in this direction is reflected by recent initiatives to obtain guidance from B.C. government agencies as to how to effectively reach this goal and how to establish funding assistance.

The organizational options, the procedures and resultant implications to the community of establishing itself as a public utility are provided in the following sections to allow a remote community, such as Atlin, to fully assess such a commitment.

2.3 Regulatory Alternatives

A small hydro development is regulated in one of four basic ways depending upon who the power is for, the size of the operation and the nature of the owner/operator. The four basic operating situations are:

- Generating electricity totally for own use, including use by employees and tenants. (Privately owned)
- Generating electricity primarily for own use, with provision to sell surplus power. (Privately owned)
- Local government (e.g. incorporated municipality) generating electricity for public use. (Publicly owned)
- Anyone other than a local government generating electricity for public use. (Privately owned)

Either or both of the latter two situations would be applicable to a small hydro development in Atlin. The attached chart (Figure 1) depicts the four basic operating situations and the general certification procedures. The shaded portions highlight the two basic operating situations applicable to a community such as Atlin.

The rationale for regulating a small hydro facility as a public utility is to provide protection and security for both the owners of the utility and the customers paying for the electric utility service. This ensures that the utility is publicly accountable and creates an avenue to receive and mediate complaints from both the utility and its customers.

REGULATORY ALTERNATIVES FOR SMALL HYDRO PROJECTS

(less than 20 MW)

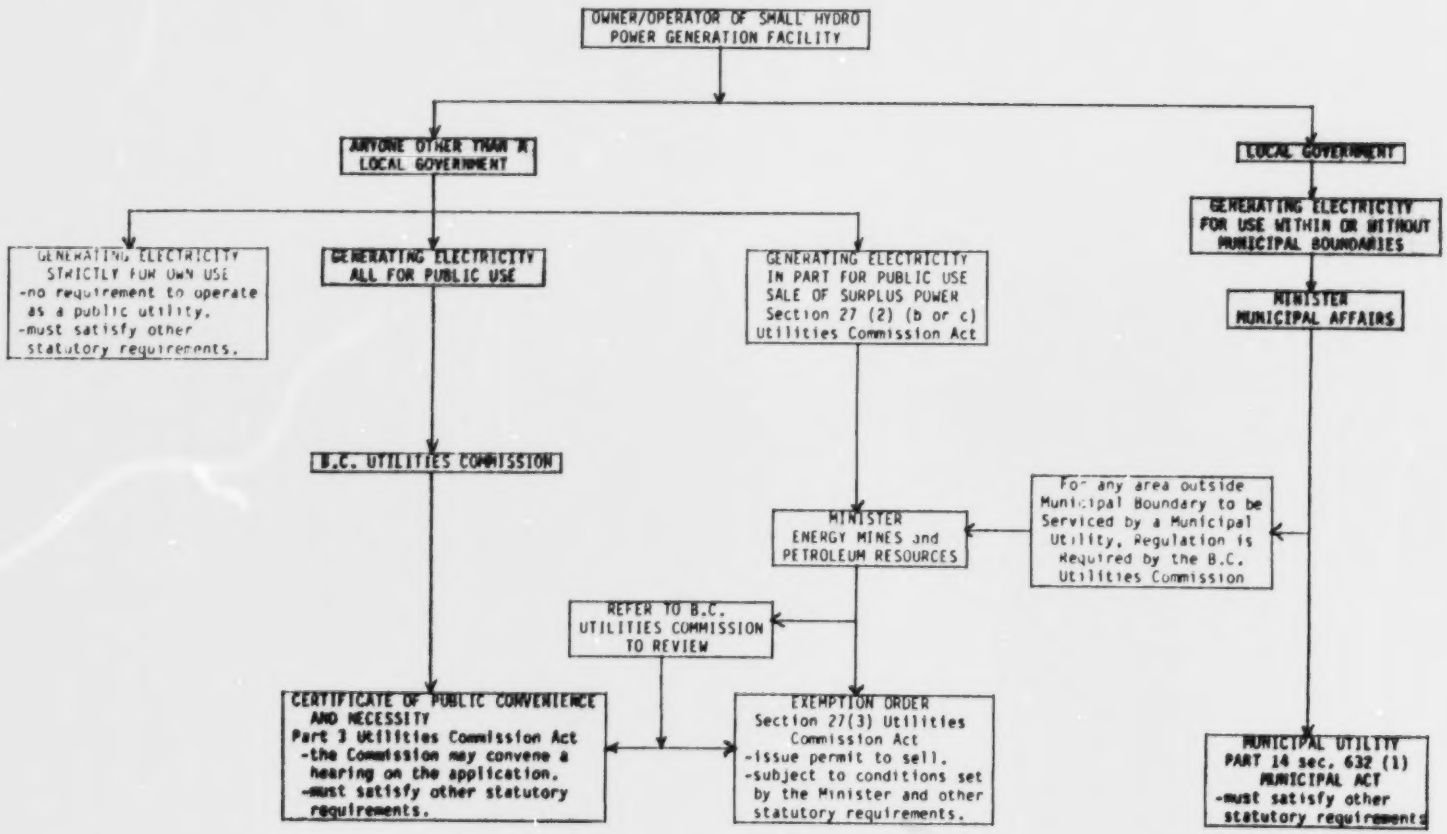

OWNER/OPERATOR OF SMALL HYDRO POWER GENERATION FACILITY
ANYONE OTHER THAN A LOCAL GOVERNMENT
LOCAL GOVERNMENT
GENERATING ELECTRICITY STRICTLY FOR OWN USE
-no requirement to operate as a public utility.
-must satisfy other statutory requirements.
GENERATING ELECTRICITY ALL FOR PUBLIC USE
GENERATING ELECTRICITY IN PART FOR PUBLIC USE SALE OF SURPLUS POWER Section 27 (2) (b or c) Utilities Commission Act
GENERATING ELECTRICITY FOR USE WITHIN OR WITHOUT MUNICIPAL BOUNDARIES
MINISTER MUNICIPAL AFFAIRS
B.C. UTILITIES COMMISSION
MINISTER ENERGY MINES and PETROLEUM RESOURCES
For any area outside Municipal Boundary to be Serviced by a Municipal Utility, Regulation is Required by the B.C. Utilities Commission
REFER TO B.C. UTILITIES COMMISSION TO REVIEW
CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY
Part 3 Utilities Commission Act
-the Commission may convene a hearing on the application.
-must satisfy other statutory requirements.
EXEMPTION ORDER
Section 27(3) Utilities Commission Act
-issue permit to sell.
-subject to conditions set by the Minister and other statutory requirements.
MUNICIPAL UTILITY
PART 14 sec. 632 (1) MUNICIPAL ACT
-must satisfy other statutory requirements

FIGURE 1

The B.C. Utilities Commission acts as the regulatory body for public utilities regulated under the Utilities Commission Act. For municipal utilities, municipal councils would initially arbitrate complaints with final arbitration and accountability made to the Ministry of Municipal Affairs. Atlin is not an incorporated municipality. Therefore initial arbitration of complaints would be handled by the Inspector of Municipalities.

3.0 ORGANIZATION OPTIONS

The options available to Atlin for developing a small hydro generating facility, and thus the options of who owns, maintains and operates the facility and the distribution system, are outlined below.

A small hydro development for Atlin involves the sale of power to the public and is therefore required to be a regulated utility. The type of public utility depends on the owner/operator of the small hydro facility and distribution system. If a local government owns and operates the facility, it is a municipal utility as defined in the Municipal Act. If anyone other than a local government owns and operates the facility, it is designated a public utility regulated by the Utilities Commission.

Atlin is already serviced with electrical power from B.C. Hydro, a regulated utility. The organizational options to establish a public utility to develop a small hydro facility and distribute the power to the Atlin area will either be a single utility, which completely takes over B.C. Hydro's current operations, or a combination of B.C. Hydro and another utility.

It is noted that the distribution system currently owned and maintained by B.C. Hydro would remain, as would all or part of the diesel generating units for standby and possible backup required during periods of peak load. The diesel generating station would be required during construction, but would then become dormant except for periods of shutdown etc. of the small hydro generating facility.

B.C. Hydro is deemed to have a certificate of Public Convenience and Necessity to supply power to the Atlin area. As such, B.C. Hydro would require the approval of the Utilities Commission to

divest itself of serving the area if another utility assumed the responsibilities of supplying power to the Atlin area.

The following identifies the groups which could potentially fulfill the role of a regulated utility.

3.1 B.C. Hydro

B.C. Hydro operate the existing diesel generation station in Atlin and own and maintain the facility and electrical distribution system. B.C. Hydro, the largest public utility in the province, is responsible for maintaining normal customer service in Atlin which includes such items as collecting the money charged individuals for electrical utility services. B.C. Hydro is regulated by the B.C. Utilities Commission and thus rates charged to customers must be approved by the Commission.

B.C. Hydro has indicated it is not in a position to undertake a small hydro development in Atlin at this time, although it is within its mandate to do so.

3.2 Improvement District

The community itself may develop, operate and maintain a small hydro generating facility through an Improvement District. This can be a convenient approach because there is an Improvement District in existence in Atlin with a mandate to provide fire protection, garbage collection and street lights. Under section 827(1) of the Municipal Act, an Improvement District has the power to acquire property, arrange financing, levy charges, construct, maintain and operate works and regulate the distribution of electricity.

3.3 Private Developer

This option would comprise an incorporated group using primarily private money to build, operate and maintain a small hydro development. As with B.C. Hydro, an entrepreneurial group taking on this responsibility would be a public utility regulated by the B.C. Utilities Commission.

A private developer would be required to apply for a Certificate of Public Convenience and Necessity from the Commission. The application procedures are outlined in Chapter 10 of the Small Hydro Design Manual in preparation by Energy Mines and Resources Canada.

Private developers would be able to take advantage of accelerated tax write-offs that are currently available for generating projects.

3.4 Combination

It is also a very real option to have a combination of either the Improvement District and B.C. Hydro or an entrepreneur and B.C. Hydro build, operate and maintain a small hydro development. B.C. Hydro has stated that it is not in a position to build and operate a small hydro facility but that it would operate and maintain the distribution system and back up diesel generation units. In this instance the Improvement District or entrepreneur develops the small hydro facility and sells the power to B.C. Hydro. An agreement with B.C. Hydro would be required with respect to B.C. Hydro's energy purchase in the Atlin area. The unit price B.C. Hydro is willing to pay for electricity will be based on a "share-the-savings" principle. Details on the purchase of energy by B.C. Hydro in non-integrated areas is provided in Appendix B.

B.C. Hydro would be responsible for operating and maintaining the distribution system and selling the power to the public. This would include normal customer service (e.g. meter reading and collecting payments from customers for electrical service). This option involves two utilities, one which generates the power and sells to the other and the second which distributes and sells it to the public. An example of one utility selling power to a municipal utility is in the Okanagan where West Kootenay Power and Light sells power to the City of Kelowna a municipal utility which distributes the power to some 11,000 users within the city.

4.0 THE IMPROVEMENT DISTRICT (ID) AS A PUBLIC UTILITY

4.1 Introduction

The operating situation which most satisfies the objectives of the Atlin residents, is for the community itself to develop the hydro resource and establish as a public utility.

The philosophy of the community if it were to proceed in this manner to develop the hydro resource and establish as a public utility would include the following objectives:

- to utilize a renewable resource to generate power.
- to use a resource to generate power which is near the community.
- to provide a quiet, environmentally acceptable source of power.
- to enhance the desire for self sufficiency.
- to insulate as much as possible against potential increases in rates for electrical service if there is a reduction or an elimination of the subsidized rate from B.C. Hydro.
- to keep the rates charged to individuals in the community as low as possible.

This section provides the procedures for the existing Improvement District to gain the function to operate as a public utility. It is stressed that further discussion be held with Municipal Affairs (e.g. the Inspector of Municipalities) regarding the specific requirements and backup documentation to adequately support a request from the ID to carry out the function of a public utility.

A public utility as defined under the Utilities Commission Act, does not include a municipality in respect of services furnished by the municipality within its own boundaries. As such, a public utility owned and operated by a municipality would be regulated under the Municipal Act and not the B.C. Utilities Commission Act. Figure 1 illustrates the certification process in general terms for an incorporated Municipality. Atlin is not an incorporated municipality nor does it wish to become so. However, the community has the ability to regulate the distribution of electricity by adding an object to the Improvement District (ID) to undertake this function as defined in Part 25 Section 827, 830 and 831 of the Municipal Act.

The Improvement District in the Atlin area comprises a number of land parcels which are not contiguous. The objects the Improvement District currently have are for fire protection, street lighting and garbage, although the garbage object is non-functional at present.

The Community Planning Area (CPA) for Atlin covers a larger area than does the ID. However the CPA is governed by the Local Services Act and there is no provision under this act for regulating utilities.

4.2 Procedures to Obtain a New Object to Operate as a Public Utility

The Improvement District would be required to request a new object from the Minister of Municipal Affairs (e.g. for the function of owning, operating and maintaining a small hydro facility and distribution system). A request for a new object must be adequately supported. The following identifies the considerations and back up needed to support such a request.

- Review the Boundaries of the ID

The present boundaries of the ID will require a review to assess whether they should be expanded to one contiguous area to serve the purpose of the new object. However expanding the ID boundaries could also mean that the other objects currently held by the ID may be extended over a larger area. To expand the boundaries, the ID will require a petition from those currently outside to want to be a part of the ID. For the residents in the Atlin area to make a realistic decision in this regard a meeting or other means of providing information (e.g. mail out) is suggested to define:

- cost to those people presently outside the ID.
- benefits of expanding the boundaries (e.g. the services provided).

A financial assessment beyond what has been provided to date (e.g. Reid Crowther 1984) would be required to define this information.

If not enough people from outside the current boundaries sign the petition to expand the ID, and the residents inside the ID want the expansion, a referendum is required. Prior to holding a referendum, information regarding the costs broken down per household inside and out of the ID should be made available.

- Peoples Consent

Part of the back up to the request for a new object includes proof of the consent of the local residents involved. This would be provided by either a petition or referendum. (see above).

- Ability to Handle the Function

The ID must be able to demonstrate that they have the ability to carry out the new function. In the case of the function being the construction, operation and maintenance of a small hydro facility and distribution system, the ID would have to identify:

- what studies and professional services would be required prior to construction.

- what hiring of staff or outside contracting would be required to coordinate construction.

- what staff hiring or contracting would be required to operate and maintain the facilities.

- what management organization and what system of accounts and operational system would be employed to handle normal customer service.

- Project Justification and Financing

  There should be a description of the project, its purpose and cost, including all ancillary or related facilities that are proposed to be constructed, owned and operated.

  An outline of the anticipated time table for construction, operation and abandonment (i.e. life expectancy of the utility) should be made together with dates by which critical events must take place to ensure continued economic viability. As applicable, identify any potential impacts by the project on the physical, biological and social environments. Outline proposals for reducing negative impacts and maximizing benefits from positive impacts.

  The technical, economic and financial feasibility of the project should be outlined. This should include a proforma containing proposed terms and conditions of service and proposed rate schedules. The rate schedule fixes rates charged for various classes of service and for the connection and reconnection of service. For the Atlin area several simple classes could be identified; e.g. residential, commercial and street lighting. The terms and conditions of service outline the basic rules the customers should abide by. The project justification should include projections on schedules giving estimates of:

  - plant in service (estimate of cost for generation transmission and distribtuion).

  - income and expenses (profit and loss projections).

  - schedules for rate of return from capital employed.

- B.C. Hydro

  A description of the mechanism by which the ID proposes to take over from B.C. Hydro the operation and maintenance of the back up diesel generators and distribution system.

Subject to the above, a Supplementary Letters Patent would be issued for the additional function to the ID.

The trustees of the ID would make bylaws to establish a schedule of rates, borrowing etc., as per section 830 of the Municipal Act and the procedures to pass bylaws outlined in the "Improvement

District Manual". Of note, is the fact that all bylaws passed by an Improvement District are effective only on registration with the Inspector. The Inspector has the power to register or refuse to register a bylaw or to take any other action he considers is in the interest of the Improvement District or the Province (section 831).

The trustees of the ID hold an annual meeting and file an annual report with Municipal Affairs. A financial statement is required with the annual report and it would include the income and expenses involved with the operation of the public utility.

4.3 Areas Serviced Outside ID Boundaries

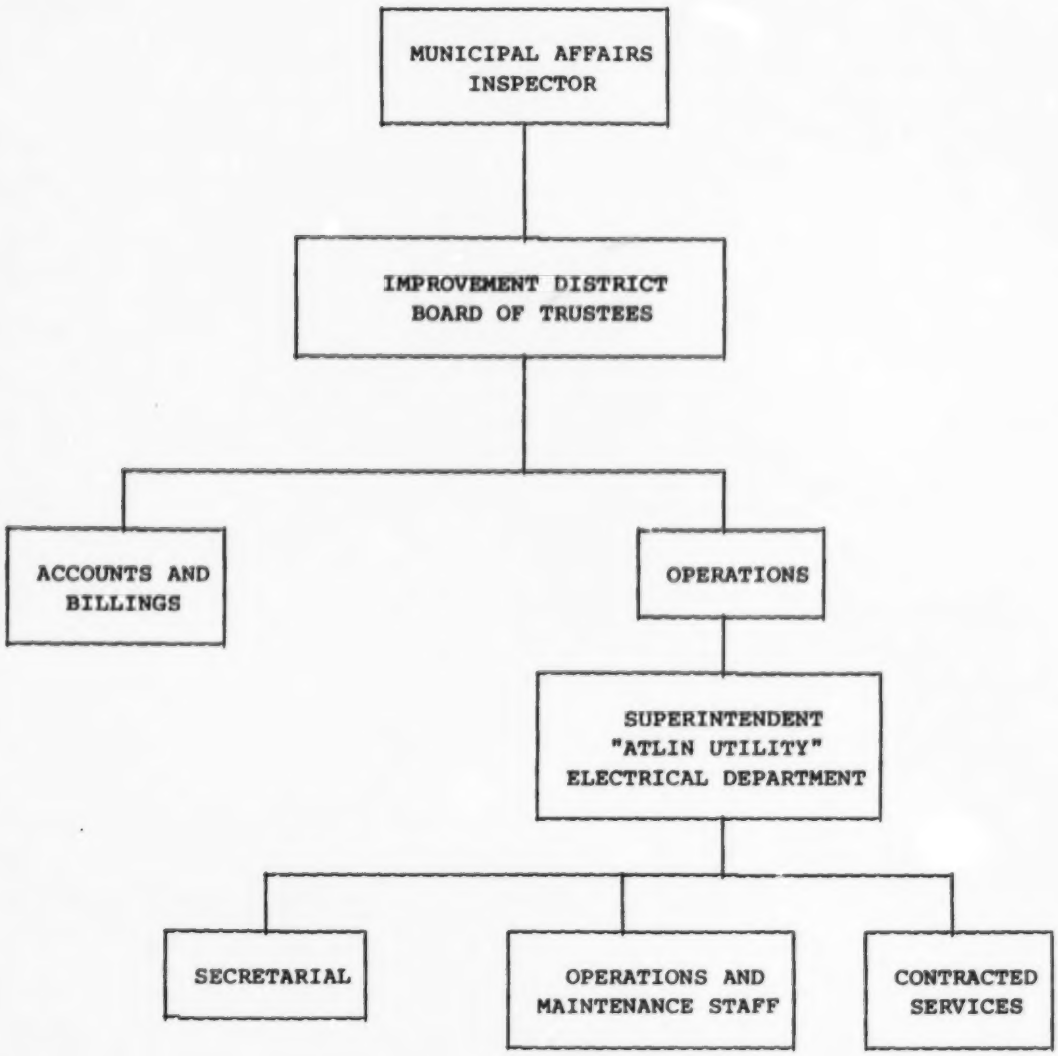
If the ID provides power to any area outside its boundaries, regulation is required by the B.C. Utilities Commission for that area serviced outside the ID. The same information that would be provided as backup to a request for a new object from Municipal Affairs would also be required to accompany an application to be regulated by the B.C. Utilities Commission unless exempted.

From an operations standpoint an annual report would be filed with both Municipal Affairs and the B.C. Utilities Commission. The annual report should minimally include the number of customers, revenue and expenditures. Application for rate increases would be handled by bylaw for the area within the ID and a new schedule of rates would be filed with the B.C. Utilities Commission (section 67 (4) Utilities Commission Act) for any area serviced outside the ID.

The trustees of the Atlin ID should consider the eventuality of serving newcomers to the area. This includes the potential of a mine or other large electrical power consumer. Section 849 of the Municipal Act states that there is no obligation on an Improvement District to convey or supply electricity to any person, land or premises. However an appeal may be made to the Inspector who may make any order in the matter that he considers just and reasonable.

4.4 Organizational Structure and Reporting Procedures

The operation and maintenance of a small hydro development and utility for a community such as Atlin would require an organization similar to that presented below:



It is noted that one person may serve in one or more positions.

The number of staff required would depend on the amount of work to be done by regular staff and the amount to be contracted out. The following would be representative:

- Superintendent - Part time (3 man months per year).
- Operations & Maintenance - Two required part time (total 4 man months).
- Accounts and Billings - Two required part time (3 total man months per year).
- Contracted Services - All new services and scheduled repair, replacement and upgrading.

Reporting Procedures

Capital budgets, listing anticipated expenditures and expected funding sources, and operating budgets listing anticipated revenues and expenditures are required annually. Appendix A provides what a typical capital and operating budget would be comprised of and the order of magnitude of dollar values for the size of utility envisioned for Atlin. (Exhibits "A" & "B").

The utility would also utilize a uniform system of accounts with debit balance accounts listing assets and expenses and credit balance accounts listing liabilities, equities and revenue.

An annual report which includes a financial statement is required from the trustees of the ID to be submitted to the Ministry of Municipal Affairs. If the ID provides electrical service outside its boundaries, a simple annual report is also required for submission to the B.C. Utilities Commission. A copy of the format for reporting the number of customers, revenue, expenses, etc. for the B.C. Utilities Commission is included in Appendix A. (Exhibit "C")

4.5 Combining the Operation with B.C. Hydro

An option to the ID developing the hydro resource and establishing itself as a public utility is to share the task with B.C. Hydro.

Two utilities could practically develop, operate and maintain a small hydro facility and distribution system as B.C. Hydro is already established in the area and currently operates and maintains the diesel generating station and the distribution system, including normal customer service. B.C. Hydro's diesel generator operation would be reduced to operation and maintenance provisions for standby power. The power B.C. Hydro runs through their distribution system would be generated from a small hydro facility. The small hydro development and transmission of power to the B.C. Hydro distribution system would be constructed, operated and maintained by the ID.

The procedures for the ID to function as a public utility under this dual utility option is similar to that outlined in Section 4.2. The ID would request, from the Minister of Municipal Affairs a Supplementary Letters Patent for an additional object to carry out the function of a public utility. The backup information to the request should include:

- A demonstration that the ID have the ability to handle the function.
- Project justification and financing.
- Consent of the local residents.
- Agreement to sell power to B.C. Hydro.(refer to Appendix B for details).

The ID would be responsible for the transmission of the power from the small hydro generation station to B.C. Hydro's bus at the existing diesel generating station. In this instance the ID would not have to adjust its boundaries as it is not responsible for the distribution of power.

The ID would probably be required to apply to the B.C. Utilities Commission for a Certificate of Public Convenience and Necessity as it would be selling power to another utility, namely B.C. Hydro. In general, the same information required as backup for a request for a new object from Municipal Affairs would also be required for an application to be regulated by the Utilities Commission. It is noted that contact with the Utilities Commission prior to submission of an application is advised to clarify the specific needs to be addressed in an application. The Commission may also convene a public hearing on the application.

5.0 IMPLICATIONS AND CONSIDERATIONS TO THE COMMUNITY

The considerations or implications to the community associated with the ID operating as a public utility are outlined below. Figure 2 identifies those factors which may be considered to have potential beneficial implications or possible negative implications to the Atlin community for either the Improvement District owning and operating the entire system or the ID combining with B.C. Hydro to service the area.

- Compatible with Community Objectives

  The community operating as a public utility would appear to satisfy the current philosphy of the area residents, particularly the desire for greater self sufficiency.

- Long Term Commitment

  The commitment and responsibility of taking on the function of a public utility should be carefully considered. Such a commitment is long term and cannot be easily divested. The ID would require the Lieutenant Governor in Council to amend or recall the Letters Patent regarding the function of a public utility and the Utilities Commission would also be required to give permission to the utility to cease operation.

- Operation

  The utility would require organization and staffing to carry out the operational functions including normal customer service. Hence there would be a cash flow through the community and the potential for local hiring. The operation includes the establishment of rate schedules, defining the conditions of service, meter reading and collecting bills. If

the option of two utilities to service the area is chosen, B.C. Hydro would carry out these tasks with respect to the distribution of power to area residents. B.C. Hydro already has a central billing system in place and back up provisions from other areas of the province for maintenance.

- Conditions of Service

Consideration should be given to the limitations or conditions of service. The capacity and characteristics of the service may be limited by the capability of the system. As such a user with a potentially high connected load, or one which may cause wide or abnormal fluctuations, may need to be restricted to prevent the suffering of quality of service to other users.

A service area boundary must be defined which may not include outlying areas. Limitations to schedule or time frame for servicing specific areas should be considered. For example street lighting may not be planned for outlying areas.

CONSIDERATIONS REGARDING 2 BASIC OPTIONS TO ORGANIZE AND OPERATE A PUBLIC UTILITY FOR THE ATLIN AREA

ORGANIZATIONAL OPTIONS	POTENTIAL BENEFICIAL IMPLICATIONS	POSSIBLE NEGATIVE IMPLICATIONS
(1) Improvement District owning and operating the entire system	• most satisfies community's objective for energy self sufficiency • provides local employment and cash flow in the community	• long term commitment - assumes future residents will continue with responsibility of operating a public utility • must define limitations or conditions of service & the consideration of serving new comers to the area • providing normal customer service includes collecting bills (in a small community this may mean collecting on overdue accounts from neighbours) • greater demand on the Board of Trustees to obtain the function of operating a public utility (e.g. revising boundaries of ID, detailed feasibility studies and arranging financing, etc.) • establish mechanism to take over B.C. Hyrdo distribution system & diesel generating facility - may take several years to effect the take over
(2) Improvement District combined with B.C. Hydro	• B.C. Hydro has central billing already in place and back-up provisions for maintenance • ID does not have to revise its boundaries if it sells the power to B.C. Hydro	• require an agreement with B.C. Hydro to purchase the power • the ID would require approval from Municipal Affairs to carry out the function of a public utility as well as regulation by the Utilities Commission to sell power to B.C. Hydro • long term commitment - assumes future residents will continue to own and operate the small hydro facility.

FIGURE 2

REFERENCES CITED

Reid Crowther & Partners Limited, 1984 Energy Alternatives Phase I, prep. for Atlin Advisory Planning Commission and Energy Mines and Resources Canada, Oct. 1984.

Stanley & Associates, 1981 Atlin Community Impact Assessment, April 1981.

Reid Crowther & Partners Limited, in preparation, Chap. 11 Organization and Operation of a Public Utility "Small Hydro Design Manual," prep. for Energy Mines and Resources Canada.

APPENDIX A

EXHIBIT "A" - Sample Capital Project Budget

EXHIBIT "B" - Sample Operating Budget

EXHIBIT "C" - Sample of Annual Report Format for BCUC

1986 CAPITAL PROJECT BUDGET

A sample capital budget for a small hydro utility with a 750 kW generating capacity.

	Description	Capital Cost	Funding Source
A.	**Electrical Service**		
1.	New Machinery and Equipment Purchases (Tools, vehicles, switchgear, pole lines, transformers, etc.	$ 25,000	Bank Loan
2.	Replacement Machinery and Equipment Purchases.	5,000	Revenue from Energy Sales
B.	**Street Lights**		
1.	Street lighting for new areas.	5,000	Direct charges to LID
2.	Replacement of old street lighting.	2,000	LID Revenue
C.	**Power Generation & Transmission**		
1.	New Equipment	—	
2.	Replacement Equipment	5,000	
	TOTAL 1985 Capital Project Budget	$ 42,000	

EXHIBIT "A"

1986 OPERATING BUDGET

A sample operating budget for a small hydro utility with a 750 kW generating capacity.

	Item	1985 Actual	1986 Estimated	Increase or Decrease	% Increase or Decrease
	Revenue				
	Energy Sales:				
1.	Residential	$ 65,000	$ 67,000	$ 2,000	3%
2.	Commercial	16,000	17,000	1,000	6%
3.	Institutional (School. hospital, etc.).	18,000	19,000	1,000	6%
A.	Totals Energy Sales	$ 99,000	$103,000	$ 4,000	4%
B.	Street Lighting	5,000	6,000	1,000	20%
C.	Connection Fees	500	600	100	20%
D.	Service Charges	1,000	1,500	500	50%
E.	Other Revenue	500	500	--	-
	TOTAL 1985 REVENUE	$106,000	$111,600	$ 5,600	5.3%

EXHIBIT "B"

Item	1985 Actual	1986 Estimate	Increase or Decrease	% Increase or Decrease
Expenditures				
A. General:				
1. Salaries and Wages	30,000	32,000	2,000	7%
2. Equipment Rentals (Cars, trucks, etc.)	5,000	5,000	-	-
3. Communication (telephone, radio)	600	600	-	-
4. Professional Fees	2,000	2,000	-	-
5. Insurance	4,000	4,000	-	-
6. Local Taxes	-	-	-	-
7. Office Rental	5,000	5,000	-	-
8. Office Equipment and Supplies	4,000	4,000	-	-
B. Capital Projects:				
1. Electrical Services	1,000	1,500	500	50%
2. Street Lights	400	500	100	25%
3. Power Generation and Transmission	600	700	100	17%
C. Purchased Services & Rentals:				
1. Repair Services	33,000	33,000	-	-
2. Equipment Rentals	12,000	12,500	500	4%
D. Other Items:				
1. Repair Parts	1,000	1,000	-	-
2. Building Maintenance	500	500	-	-
TOTAL 1985 EXPENDITURES	$99,100	$102,300	$3,200	3.2%

ANNUAL REPORT

SUMMARY OF SALES AND REVENUE

For the Year Ending -
Improvement District -

Class of Service	Number of Consumers	KWH Sold	Revenue	Average per KWH Sold
Electricity Sales:			$	cents
Domestic				
Commercial				
Industrial				
Street Lighting				
Other Sales (specify):				
_____				
_____				
_____				
_____				
_____				
_____				
_____				
Miscellaneous Revenue				
TOTAL				
KWH used by reporting Utility				
KWH lost or unaccounted for				
Total				

EXHIBIT "C"

APPENDIX B

Purchase of Energy By B.C. Hydro
in Non-Integrated Areas
Information Package for Suppliers

3 July 1985

PURCHASE OF ENERGY BY B. C. HYDRO IN NON-INTEGRATED AREAS

INFORMATION PACKAGE FOR SUPPLIERS

1. General

In order to reduce the costs of generating electricity in service areas not connected to the integrated grid, B. C. Hydro (BCH) will consider proposals from suppliers offering to sell electricity which would displace BCH diesel generation. The following communities comprise the non-integrated areas served by BCH:

Anahim Lake	*Fort Nelson
Atlin	Kitkatla
Bamfield	*Masset
*Bella Bella	*Sandspit
*Bella Coola	*Stewart
Dease Lake	Tatla Lake
Eddontenajon	Telegraph Creek

The communities noted by "*" are the largest in terms of diesel fuel consumption, and have the highest priority for cost reduction.

2. Summary of Purchase Policy

Essential terms and conditions applicable to possible energy purchases by BCH in non-integrated areas shall be determined in a written agreement. The following guidelines will cover the main issues in such agreements:

(a) Price

- The unit price (¢/kW.h) which BCH would pay for electricity will be based on a "share-the-savings" principle. Example:

  Supplier's cost of supply = 8 ¢/kW.h
  BCH's marginal cost of diesel generation = 12 ¢/kW.h
  Share-the-savings price = 10 ¢/kW.h

- BCH's marginal cost of diesel generation would comprise fuel and lube oil costs in the preceding fiscal year.

- The upper limit on the price paid by BCH would be 90% of BCH's marginal cost, e.g. .90 x 12 ¢/kW.h = 10.8 ¢/kW.h in the above example.

- The supplier's costs, BCH's marginal cost and the purchase price will be updated annually.

- Suppliers will be required to provide to BCH an annual audited statement showing details of their cost of supply.

- Adjustments may be made to the above pricing formula in cases where the supplier constructs plant for BCH.

(b) Call for Competing Proposals

- Prior to negotiating an agreement with a prospective supplier, BCH may advertise for competing proposals for alternative electrical supply.

(c) General and Special Terms of Purchase Agreement

- Suppliers proposing to sell energy to BCH shall provide utility-grade electrical supply at the point of interconnection (e.g. within accepted utility standards for voltage and frequency regulation).

- Long-term take-or-pay minimums are unacceptable to BCH, but BCH may guarantee a minimum purchase for a period not exceeding 5 years.

- Suppliers will be responsible for all costs of generating and delivering electricity to BCH's system. Special arrangements for cost recovery may be implemented in cases where the supplier builds plant for BCH's ownership.

- Suppliers will be responsible for obtaining all government approvals, permits and licences, and for all costs associated with these approvals, permits or licences.

- Suppliers must comply with safety, technical and operating criteria specified by BCH for interconnection and operation in conjunction with BCH's system. This includes the provision and installation of all necessary equipment to protect the supplier's system from BCH's system and vice versa (see Appendix 1).

- If a supplier fails to supply energy within a reasonable time or fails to operate within provisions specified in the purchase agreement, the agreement would terminate without any compensation by BCH.

- BCH shall have no financial or legal liability should the supplier have problems with others (e.g. contractors and/or suppliers).

- BCH shall have the option to amend or terminate agreements in the event that regulations pertinent to such agreements are materially changed by the BCUC or by other regulatory authorities having jurisdiction over BCH.

- BCH will be saved harmless from any injury or failure which may result as a consequence of interconnection with BCH's system.

- Neither the receipt of proposals by BCH nor anything done or expenditures incurred in connection with such proposals shall obligate B. C. Hydro to enter into an energy purchase contract or pay any amount whatsoever in connection with proposals.

(d) Term of Purchase Agreement

- The term of a specific purchase agreement will depend on BCH's system plan for the non-integrated area concerned.

- In no case would BCH consider a term greater than 20 years.

(e) Early Integration

- If BCH integrates an area earlier than originally planned, the unit price paid to a supplier would revert to rates paid by BCH for electricity purchased from suppliers on the integrated system. Other terms and conditions pertaining to purchases on the integrated system would also apply.

- Should a supplier wish to discontinue the purchase agreement in the event of early integration, the supplier would have the option to sell his plant to BCH at book value. The option for a supplier to sell his plant to BCH would not apply if integration does not occur within the term of the purchase agreement.

3. Essential Information Required in Proposals Provided by Suppliers

Suppliers offering to sell energy to BCH in non-integrated areas must provide the following information in their proposals to BCH:

(a) A summary description of the overall proposed development including details on major system components. The following information should be included:

- A location map.

- Power plant capacity.

- Routing of the proposed intertie line and location of proposed interconnection with BCH's system.

- Basic information on protection and control equipment proposed to be installed by the supplier (e.g. type, range and settings for relays; type and capacity for control equipment). Further detailed drawings and specifications will be required if the proposal is accepted.

- Voltage at point of interconnection.

- Estimates of monthly energy deliveries to BCH's system.

(b) The term proposed for the purchase agreement.

(c) Arrangements for operation and maintenance of the supplier's system.

(d) A draft copy of the proposed purchase agreement between the supplier and BCH.

(e) Initial estimates of the supplier's annual cost of providing energy to BCH for the term of the proposed purchase agreement.

4. Information Package for a Selected Non-Integrated Area

Attached is the information package for a selected non-integrated area served by BCH diesel generation. This information includes historical and forecast data (loads, generation capacity, fuel costs, fuel efficiency), a location map and a one-line schematic of the diesel plant.

Interutility Marketing
3 July 1985

Appendix 1

Technical Requirements and General Terms for Interconnection with BCH's System

(a) Suppliers must provide and maintain electrical protection such that at all times their system and generator, and BCH's system will be protected from damage and/or hazardous conditions related to parallel operation of two systems. Any relays which may be required in BCH's facilities due to the connection of a supplier's system will be installed at the supplier's cost by BCH and will become the property and responsibility of BCH. Relays required on the supplier's system are his property and responsibility.

(b) At its sole discretion, BCH may, at any time suspend, disconnect or otherwise act to control or terminate the delivery of electricity whenever adverse supply conditions, safety or technical problems appear.

(c) BCH reserves the right to perform acceptance tests on a supplier's protection and generation equipment or to request that the supplier provide third party certification on the operation of his protection equipment. BCH also reserves the right to monitor from time to time the electrical characteristics of the supplier's system. The performance or failure to perform any such tests or monitoring will not leave BCH responsible for any consequences of the test or the later operation of the supplier's generation, nor shall such tests or monitoring constitute a license or permission of any kind. Protection of the supplier's system is the supplier's responsibility.

(d) Suppliers will be required to have a visible, lockable isolating switch interlocked with the generator breaker or with load interrupting capabilities. The isolating switch must be accessible to BCH at all times and exterior to any building housing the generation equipment or controls. This switch shall be suitable for being secured by a standard BCH padlock. In addition, BCH may require that suppliers provide control equipment which would permit remote tripping of the developer's generation.

(e) Suppliers will be required to pay for installation of an "out" meter and an "in" meter to measure power flows to and from BCH's system, respectively. The location of the required meters will be designated by BCH.

Appendix 2

Information Package for BCH Diesel Service Area - Atlin

(a) Map and Schematic Diagram

- Power system location map.
- Diesel plant one-line schematic.

(b) Installed Generation Capacity and Annual Loads

Fiscal Year (Apr-Mar)	Installed Generation (kW) Diesel	Hydro	Gross Load Peak (kW)	Energy (MW.h)
(i) Actual				
79/80	1 750	0	400	1 688
80/81	1 750	0	440	2 030
81/82	1 750	0	580	2 380
82/83	1 750	0	610	2 480
83/84	1 750	0	530	2 490
84/85	N/A	0	690	2 730
(ii) Forecast				
85/86	1 700	0	705	2 778
86/87	1 700	0	712	2 809
87/88	1 700	0	723	2 849
88/89	1 700	0	730	2 878
89/90	1 700	0	738	2 911
90/91	1 700	0	748	2 948

(c) Historical Annual Diesel Generation, Fuel Costs and Fuel Efficiency

Fiscal Year (Apr-Mar)	Annual Diesel Generation (MW.h)	Fuel Costs (¢/kW.h) Fuel Oil	Lube Oil	Total	Annual Average Fuel Efficiency (kW.h/L)
79/80	1 688	4.86	0.08	4.94	3.09
80/81	2 032	7.57	0.18	7.75	3.17
81/82	2 384	10.88	0.19	11.07	3.29
82/83	2 483	13.01	0.20	13.21	3.09
83/84	2 490	13.40	0.32	13.72	3.06
84/85	N/A	N/A	N/A	N/A	N/A

(d) Plans for Integration

- Integration not planned in the period April 1985 to March 1996.

Interutility Marketing
7 Oct 1985

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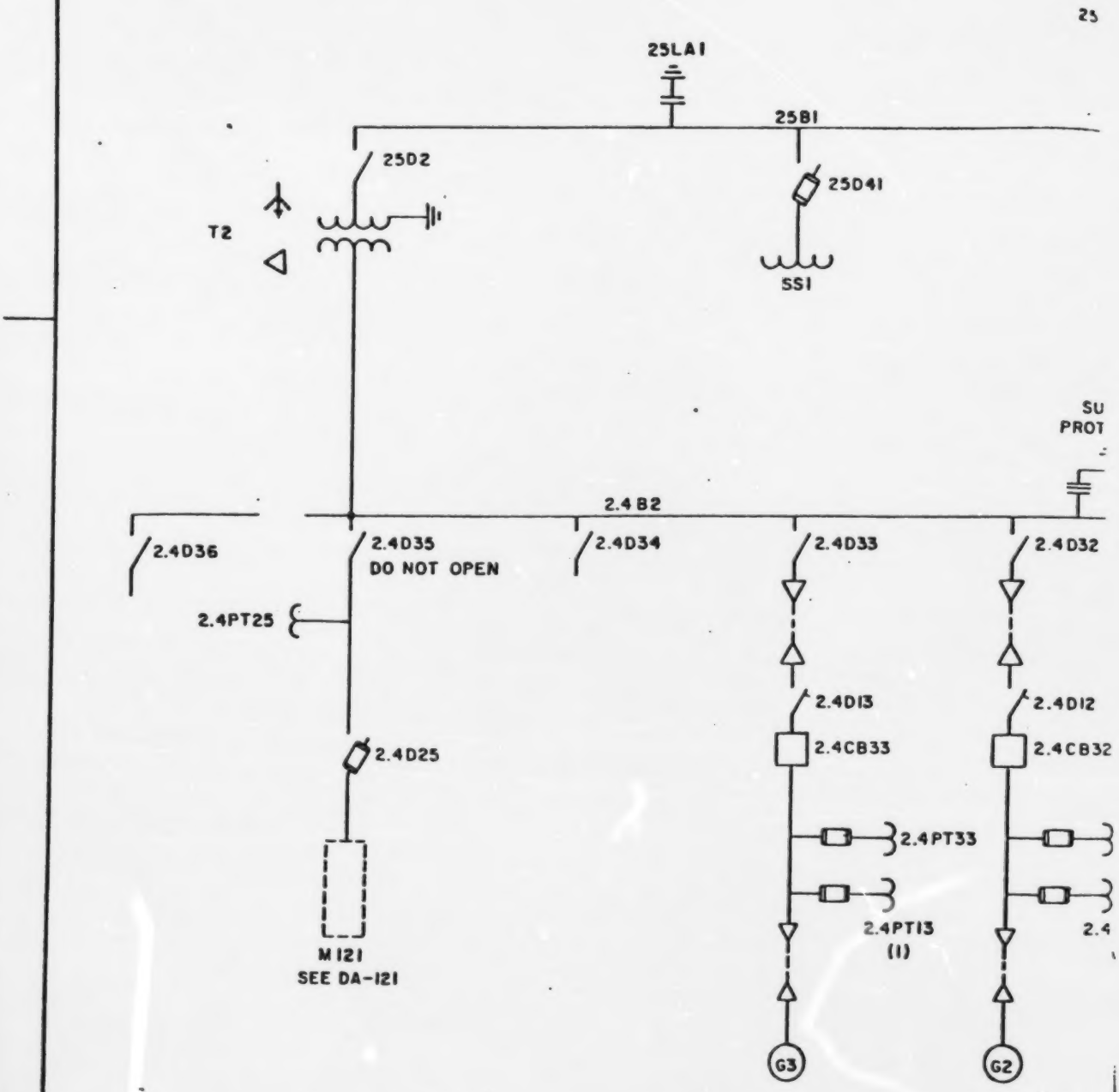
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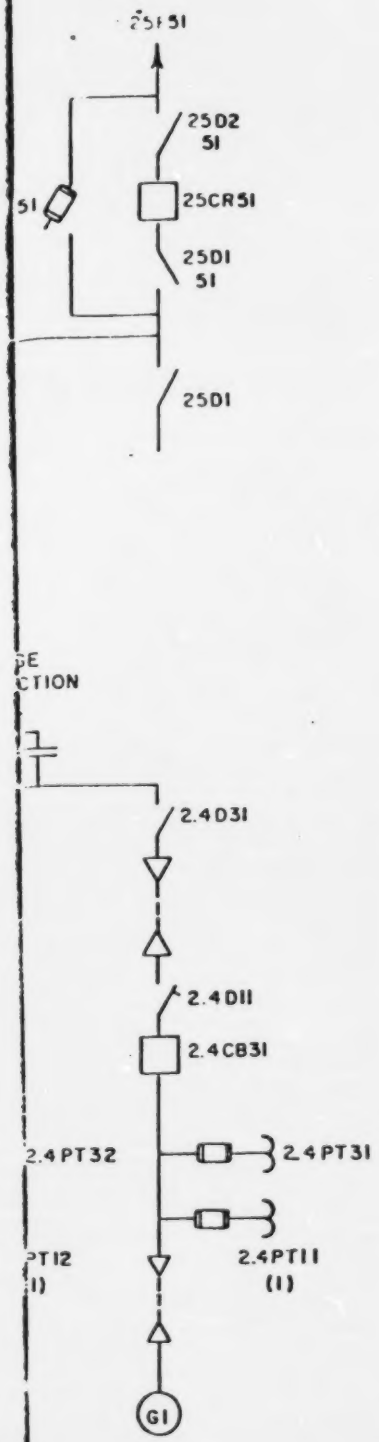


RATINGS OF EQUIPMENT

EQUIPMENT DESIGNATION	B.C. HYDRO NUMBER	MANUFACTURER / TYPE / RATING
T2	2-7201	STC, 1.5/2 MVA, 2.4 – 25.2 KV, OFF LOAD TAPS ± 2X2.5 %
SS1	2-7053, 54, 55	3-1Ø, 25 KVA, 14.4 KV-208/120V
25CR51	3-4807	MGE, TYPE RVE, 25KV, 400A
2.4CB31	3-4808	SAC, TYPE R, 600A
2.4CB32	3-4809	SAC, TYPE R, 600A
2.4CB33	3-4810	SAC, TYPE R, 600A
G1, G2, G3		BBC, 400 KW
2.4D11, 12, 13		FINNING, 2.4 KV, 200A
2.4D31, 32, 33		PAT, TYPE HT, 7.5 KV, 1200A
2.4D34, 35		PAT, TYPE HT, 7.5 KV, 1200A
2.4D36		SCE, 25 KV, 900A
25D1, 2		SCE, 25 KV, 400A
25D41		SCE, TYPE XS, 50A FUSE
25BP51		SCE, TYPE XS, 100A, SOLID LINK
25D151, 251		SCE, 25 KV, 400A
M121		ROAD MOBILE, 2X250 KW

LOCATION – 115 MILES S.E. OF WHITEHORSE

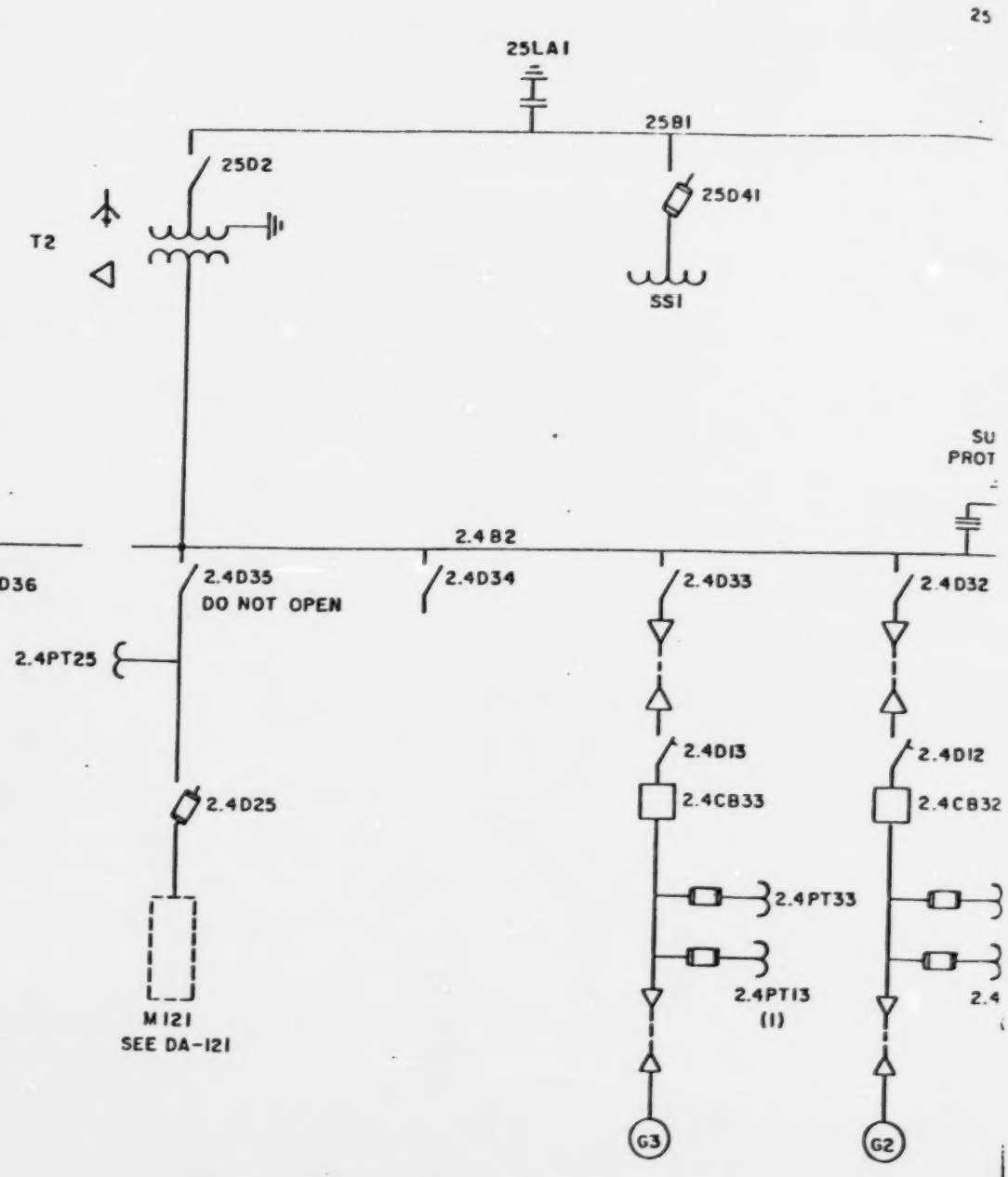
No.	Date	Revision	By	Ch.	Ch.	App.
	23.9.83	REVISED & REDRAWN	M.B.	JLW		

BC HYDRO AND POWER AUTHORITY

ATLIN D.G.S. (ATL)

OPERATING ONE LINE DIAGRAM

M20903 – NC – 29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